

Research on radiation-hardened nanoscale integrated circuit technology

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● **Abstract**

This research aims to obtain the radiation-hardened integrated circuit technology on nanoscale semiconductor process.

● **Reasons and benefits of using JAXA Supercomputer System**

We are using the supercomputer system because we are exploring the possibility of accelerating the simulation of semiconductor devices (known as technology computer-aided design, or TCAD).

● **Achievements of the Year**

The Hyper Environment for Exploration of Semiconductor Simulation (HyENEXSS), which is one of the domestically developed TCAD environments, was attempted to be installed on the JSS3 supercomputer system. While the license manager software could not be installed with the normal user, the TCAD software itself was successfully installed on the JSS3. It has been found that it is possible to accelerate the TCAD simulation of HyENEXSS on JSS3 by properly installing the license manager software with it.

● **Publications**

N/A

● **Usage of JSS**

● **Computational Information**

Process Parallelization Methods	N/A
Thread Parallelization Methods	N/A
Number of Processes	1
Elapsed Time per Case	8 Hour(s)

● **JSS3 Resources Used**

Fraction of Usage in Total Resources*1(%): 0.00

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage*2(%)
TOKI-SORA	0.00	0.00
TOKI-ST	0.00	0.00
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	0.00	0.00
TOKI-TST	429.87	0.01
TOKI-TGP	0.00	0.00
TOKI-TLM	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage*2 (%)
/home	5.00	0.00
/data and /data2	50.00	0.00
/ssd	50.00	0.01

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage*2 (%)
J-SPACE	0.00	0.00

*1: Fraction of Usage in Total Resources: Weighted average of three resource types (Computing, File System, and Archiver).

*2: Fraction of Usage : Percentage of usage relative to each resource used in one year.

● **ISV Software Licenses Used**

ISV Software Licenses Resources		
	ISV Software Licenses Used (Hours)	Fraction of Usage* ² (%)
ISV Software Licenses (Total)	0.00	0.00

*²: Fraction of Usage : Percentage of usage relative to each resource used in one year.